

1 WHAT IS CLAIMED IS:

1. An irrigated electrode catheter comprising: /

5 a catheter body having proximal and distal ends and  
a lumen extending therethrough;

a tip section having proximal and distal ends, the  
proximal end of the tip section being fixedly attached to the  
10 distal end of the catheter body;

a porous tip electrode fixedly attached to the  
distal end of the tip section, the tip electrode comprising a  
non-conductive porous material over which a conductive porous  
15 coating is disposed; and

an irrigation tube extending through the catheter  
body and into the porous tip electrode of the tip section,  
whereby fluid passing through the irrigation tube can pass  
20 through the non-conductive porous material and the conductive  
porous coating to reach surrounding tissue.

2. An irrigated electrode catheter according to claim  
1, further comprising an electrode lead wire in electrical  
25 communication with the conductive porous coating.

3. An irrigated electrode catheter according to claim  
1, wherein the non-conductive porous material is made from  
material selected from the group consisting of polyethylene,  
30 Teflon and ceramic.

4. An irrigated electrode catheter according to claim  
1, wherein the non-conductive porous material comprises  
polyethylene.  
35

1           5.    An irrigated electrode catheter according to claim  
1, wherein the conductive porous coating is made from material  
selected from the group consisting of platinum and gold.

5           6.    An irrigated electrode catheter according to claim  
1, wherein the conductive porous coating comprises an alloy of  
platinum and iridium.

10           7.    An irrigated electrode catheter according to claim  
6, wherein the alloy of platinum and iridium comprises 90%  
platinum and 10% iridium.

15           8.    An irrigated electrode catheter according to claim  
1, wherein fluid passes through channels between particles of  
the non-conductive porous material.

20           9.    An irrigated electrode catheter according to claim  
1, wherein fluid passes through channels of a webbing of the  
conductive porous coating.

25           10.   An irrigated electrode catheter according to claim  
1, further comprising a temperature sensing means mounted  
within the tip electrode.

30           11.   An irrigated electrode catheter according to claim  
1, further comprising an electromagnetic sensor mounted in the  
tip section.

35           12.   An irrigated electrode catheter according to claim  
1, wherein the non-conductive porous material comprises  
sintered polymer particles.

            13.   An irrigated electrode catheter according to claim  
1, wherein the non-conductive porous material comprises  
sintered ceramic particles.

1           14. An irrigated electrode catheter according to claim  
12, wherein the polymer particles comprises particles of  
polyethylene or Teflon.

5           15. An irrigated electrode catheter comprising: /

a catheter body having an outer wall, proximal and  
distal ends, and a lumen extending therethrough;

10           a tip section comprising a segment of flexible  
tubing having proximal and distal ends and at least one lumen  
therethrough, the proximal end of the tip section being  
fixedly attached to the distal end of the catheter body;

15           a porous tip electrode fixedly attached to the  
distal end of the tubing of the tip section, the tip electrode  
having an outer surface and comprising a non-conductive porous  
material through which fluid can pass and a thin metal coating  
disposed over the outer surface of the porous tip electrode;  
20           and

an irrigation tube having proximal and distal ends  
extending through the central lumen in the catheter body,  
wherein the distal end of the irrigation tube is in fluid  
25           communication with the proximal end of the passage in the tip  
electrode, whereby fluid can pass through the irrigation tube,  
into the passage in the tip electrode and through the porous  
material of the tip electrode to the outer surface of the tip  
electrode.

30           16. An irrigated electrode catheter according to claim  
15, further comprising an electrode lead wire in electrical  
communication with the conductive porous coating.

1           17. An irrigated electrode catheter according to claim  
15, wherein the non-conductive porous material is made from  
material selected from the group consisting of polyethylene,  
Teflon and ceramic.

5           18. An irrigated electrode catheter according to claim  
15, wherein the non-conductive porous material comprises  
polyethylene.

10           19. An irrigated electrode catheter according to claim  
15, wherein the conductive porous coating is made from  
material selected from the group consisting of platinum and  
gold.

15           20. An irrigated electrode catheter according to claim  
15, wherein the conductive porous coating comprises an alloy  
of platinum and iridium.

20           21. An irrigated electrode catheter according to claim  
20, wherein the alloy of platinum and iridium comprises 90%  
platinum and 10% iridium.

25           22. An irrigated electrode catheter according to claim  
15, wherein fluid passes through channels between particles of  
the non-conductive porous material.

30           23. An irrigated electrode catheter according to claim  
15, wherein fluid passes through channels of a webbing of the  
conductive porous coating.

35           24. An irrigated electrode catheter according to claim  
15, further comprising a temperature sensing means mounted  
within the tip electrode.

1           25. An irrigated electrode catheter according to claim  
15, further comprising an electromagnetic sensor mounted in  
the tip section.

5           26. An irrigated electrode catheter according to claim  
15, wherein the non-conductive porous material comprises  
sintered polymer particles.

10           27.. An irrigated electrode catheter according to claim  
15, wherein the non-conductive porous material comprises  
sintered ceramic particles.

15           28. An irrigated electrode catheter according to claim  
26, wherein the polymer particles comprises particles of  
polyethylene or Teflon.

20

25

30

35